



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/916,764	07/27/2001	Michael H. Badger	M-11711 US	8510

7590

10/25/2004

David L McCombs
Haynes And Boone LLP
901 Main Street
Suite 3100
Dallas, TX 75202-3789

EXAMINER

WANG, ALBERT C

ART UNIT	PAPER NUMBER
----------	--------------

2115

DATE MAILED: 10/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	09/916,764		BADGER, MICHAEL H.	
	Examiner		Art Unit	
	Albert Wang		2115	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2002 and 11 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,8-33,35 and 36 is/are rejected.
- 7) ☒ Claim(s) 4-7 and 34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) ¶ | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>7/27/2001</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-36, as amended in the preliminary amendment filed 6 June 2002, are pending.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 36 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 36 recites the limitation "the method of claim 35" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 8-12, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shin, U.S. Patent No. 6,804,724, in view of Bergstrom et al., U.S. Patent No. 5,307,379 ("Bergstrom").

As per claim 1, Shin teaches a computer system comprising:

a first processor (figs. 13 & 14, video card 520a comprising video controller 524);

a transmission line coupled to the first processor (fig. 14, within cable 610); and

a monitor including a receiver coupled to the transmission line (figs. 13 & 14, monitor 600a including receiver).

However, Shin does not expressly teach changing circuitry. Bergstrom teaches a receiver coupled to a transmission line (fig. 2, receiver 31 coupled to signal line 24'; col. 5, lines 21-32). Bergstrom also teaches changing circuitry coupled to the transmission line and to a receiver input gate (fig. 2, processor 292 coupled to signal lines 24' & 28 and to gate 291). Bergstrom further teaches the changing circuit is capable of changing at least one of a pedestal voltage level on the transmission line and a signal threshold voltage level of the receiver input gate, such that the pedestal voltage level and the signal threshold voltage level are not substantially equal after the change is made (col. 7, line 59 – col. 8, line 5, set threshold of gate 291 a predetermined noise margin above the noise floor). At the time of the invention, it would have been obvious to one skilled in the art to apply Bergstrom's well known arrangement for muting receivers (col. 1, lines 31-45) to Shin's computer system. A motivation for doing so would have been to satisfy a need for dynamically adjusting receiver threshold (col. 2, lines 36-41).

As per claims 2 and 3, Shin teaches a software program coupled to a second processor enables a user of the computer system to initiate the changing at least one of the pedestal voltage level and the signal threshold voltage level (fig. 11, BIOS 540, which includes setup program, is coupled to CPU 530).

As per claim 8, Shin teaches the transmission line carries horizontal synchronization signals (fig. 14, hsync).

As per claims 9 and 10, Bergstrom teaches at least one of the pedestal voltage level and the signal threshold voltage level is raised or lowered (col. 7, line 59 – col. 8, line 5).

As per claims 11 and 12, Bergstrom teaches at least one of the pedestal voltage level and the signal threshold voltage level is changed by a predetermined amount (col. 7, lines 59 – col. 8, line 5).

As per claims 15 and 16, Bergstrom teaches the signal threshold voltage level is changed by changing a reference voltage of the receiver input gate at an end of the transmission line (col. 7, line 59 – col. 8, line 5).

4. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shin/Bergstrom as applied to claim 1 above, and further in view of National Semiconductor, “An Overview of LVDS Technology”, Application Note 971, July 1998 (“National”).

As per claim 13, Shin/Bergstrom, as applied to claim 1 above, does not expressly teach changing the pedestal voltage level. National teaches changing the pedestal voltage level (fig. 2, termination schemes). At the time of the invention, it would have been obvious to one skilled in the art to apply National's termination schemes to Shin/Bergstrom's computer system, in order to prevent reflections (National, page 2).

As per claim 14, National teaches an impedance approximating the characteristic impedance of the transmission line (page 2).

5. Claims 17, 18, 21-33, 35, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergstrom et al., U.S. Patent No. 5,307,379 (“Bergstrom”), in view of National Semiconductor, “An Overview of LVDS Technology”, Application Note 971, July 1998 (“National”).

As per claim 17, Bergstrom teaches a method of reducing an effect of signal distortion on a transmission line, comprising:

changing at least one of a pedestal voltage level on the transmission line and a signal threshold voltage level of a receiver input gate coupled to the transmission line (fig. 2, gate 291 for receiver 31 coupled to signal lines 24' and 28), such that the pedestal voltage level and the signal threshold voltage level are not substantially equal after the changing, and such that the effect of signal distortion on the transmission line is reduced (col. 7, line 59 – col. 8, line 5, set threshold of gate 291 a predetermined noise margin above the noise floor; col. 1, lines 31-45).

However, Bergstrom does not expressly teach the signal distortion is from reflection on the transmission line. National teaches that reflection on a transmission line leads to signal distortion (page 4, “Multiple reflections can travel up and down the line causing ringing, overshoot and undershoot which reduces the noise margin”). At the time of the invention, it would have been obvious to one of ordinary skill in the art that, in view of National’s teaching, Bergstrom’s method may be applied to signal distortion due to line reflection. A motivation for doing so would have been to optimize the receiver for various sources of noise.

As per claim 18, Bergstrom teaches detecting the effect of signal distortion from reflection on the transmission line caused by a substantial equality of the pedestal voltage level and the signal threshold voltage level (col. 5, lines 9-20).

As per claim 21, National teaches the transmission line is contained in an interface cable (page 5, “signal quality across cable”). Bergstrom teaches the transmission line connecting a second processor coupled to a memory (fig. 2, processor 292 coupled to memory 293), and the second processor contains the signal threshold voltage level (col. 7, line 59 – col. 8, line 5).

As per claim 22, National teaches the transmission line can be used for carrying video signals (page 6, "LCD displays") which includes horizontal synchronization signals.

As per claims 23 and 24, Bergstrom teaches the changing includes raising or lowering at least one of the pedestal voltage level and the signal threshold voltage level (col. 7, line 59 – col. 8, line 5).

As per claims 25 and 26, Bergstrom teaches the changing includes changing at least one of the pedestal voltage level and the signal threshold voltage level by a predetermined amount (col. 7, line 59 – col. 8, line 5).

As per claims 27 and 28, National teaches the pedestal voltage level is changed (fig. 2).

As per claims 29 and 30, Bergstrom teaches the signal threshold is changed (col. 7, line 59 – col. 8, line 5).

As per claims 31-33, Bergstrom teaches the detecting includes monitoring an output of a synchronization processor for irregularly timed output signals (col. 5, lines 9-20).

As per claim 35, Bergstrom teaches apparatus for reducing an effect of signal distortion on a transmission line, comprising:

means for changing at least one of a pedestal voltage level on the transmission line and a signal threshold voltage level of a receiver input gate coupled to the transmission line (fig. 2, gate 291 for receiver 31 coupled to signal lines 24' and 28), such that the pedestal voltage level and the signal threshold voltage level are not substantially equal after the changing, and such that the effect of signal distortion on the transmission line is reduced (col. 7, line 59 – col. 8, line 5, set threshold of gate 291 a predetermined noise margin above the noise floor; col. 1, lines 31-45).

Art Unit: 2115

However, Bergstrom does not expressly teach the signal distortion is from reflection on the transmission line. National teaches that reflection on a transmission line leads to signal distortion (page 4, "Multiple reflections can travel up and down the line causing ringing, overshoot and undershoot which reduces the noise margin"). At the time of the invention, it would have been obvious to one of ordinary skill in the art that, in view of National's teaching, Bergstrom's apparatus may be applied to signal distortion due to line reflection. A motivation for doing so would have been to optimize the receiver for various sources of noise.

As per claim 36, Bergstrom teaches means for detecting the effect of signal distortion from reflection on the transmission line caused by a substantial equality of the pedestal voltage level and the signal threshold voltage level (col. 5, lines 9-20).

6. Claims 19 and 20 rejected under 35 U.S.C. 103(a) as being unpatentable over Bergstrom/National as applied to claim 17 above, and further in view of Shin, U.S. Patent No. 6,804,724.

As per claims 19 and 20, Bergstrom/National, as applied to claim 17, does not expressly teach using a software program coupled to a first processor to initiate the changing. Shin teaches a computer system with software, coupled to a first processor, that has a setup program providing an on-screen display capability (fig. 11, BIOS 540 coupled to CPU 530). At the time of the invention it would have been obvious to one ordinary skill in the art to apply Shin's on-screen capability to Bergstrom/National's method in order to enhance the user friendliness of the method.

Allowable Subject Matter

7. Claims 4-7 and 34 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

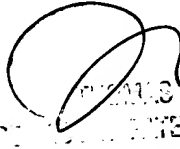
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert Wang whose telephone number is 571-272-3669. The examiner can normally be reached on M-F (9:30 - 6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas C. Lee can be reached on 571-272-3667. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

aw
October 19, 2004


THOMAS C. LEE
SENIOR PATENT EXAMINER
TECHNOLOGY CENTER 2100